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Medical Diagnostic Radiation Exposures and Risk of Gliomas.

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Abstract

Abstract High-dose ionizing radiation is an established risk factor for glioma, but it remains unknown whether moderate- and low-dose radiation increase glioma risk. In this analysis, we assessed the evidence that self-reported exposures to diagnostic ionizing radiation, including computerized tomography (CT) scans, is associated with increased risk of adult glioma. While no independent association was observed for CT scans alone (3+ scans compared to none P = 0.08 and 1-2 scans compared to none P = 0.68), our findings suggest an increased risk of adult gliomas with cumulative exposure to three or more CT scans to the head and neck region (OR = 1.97, 95% CI: 0.92-4.23) limited to those who reported a family history of cancer: the P value for the interaction between having three or more CT scans and family history of cancer was 0.08. The stratum-specific adjusted OR for those with family history of cancer was more than three times that for the sub-group without family history of cancer. While there is some potential for symptom-related bias, one might expect this to be present for all diagnostic procedures rather than specific to one procedure. The interaction between CT scans and glioma with family history of cancer supports the biological plausibility of our findings, because similar results have been found for breast cancer and radiation. This observational data will increase awareness about potential risks associated with CT scans and the need to minimize the use of unnecessary examinations.

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